

**Notice of Allowability**

Application No.

09/997,531

Examiner

Susan F. Rayyan

Applicant(s)

O'NEIL ET AL.

Art Unit

2167

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 8/26/04.
2. ☒ The allowed claim(s) is/are 10-12.
3. ☒ The drawings filed on 11/330/01 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                                  |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date <u>12/20/04</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment  |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance                                    |
|   | 9. <input type="checkbox"/> Other _____.   |

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Peter Ullman on December 20, 2004.

The application has been amended as follows:

### CLAIMS

In claim 11, line 15

Delete ~~note~~ and insert node .

2. The following is an examiner's statement of reasons for allowance:
3. The present invention is directed to a computer-readable medium having encoded thereon a data structure which represents hierarchically-organized data said hierarchically-organized data having at least a first node at a first level and a plurality of second nodes at a second level the second nodes being child nodes of the first node, the first and second nodes each having a corresponding data item associated therewith, the data structure comprising: a plurality of rows each having a plurality of fields, each of said rows corresponding to a data item associated with a one of the first and second nodes, the fields of each row comprising: a first field which stores the data item associated with the one of the nodes that corresponds to the row: and a second field which stores a position identifier which identifies the level at which the node that

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corresponds to the row is located in the hierarchically-organized data and which further indicates one of: (a) an identity of an ancestor node of the node that corresponds to the row or (b) the fact that the node that corresponds to the row has no ancestor, wherein the position identifier of the first node comprises a first value in a space of ordered values, and wherein the position identifiers of each of the second nodes comprises said first value and a second value in said space of ordered values, wherein an order is defined among the second nodes, wherein the second values associated with the second nodes are respective of said order with respect to said-space of ordered values, wherein said space of ordered values comprises the set of integers, wherein said first value is a "1" wherein the second values for the second nodes are odd integers in an increasing series of integers wherein said hierarchically-organized data comprises a third node which is a child of said first node and which is located between first and second ones of said second nodes, said third node having a position identifier associated therewith, and wherein the position identifier for the second node comprises said first value, an even number between the second values associated with said first and second ones of said second nodes, and an odd number.

The closest prior art of record, Brosda et al (US 5,873,087) teaches a data structure which represents hierarchically-organized data said hierarchically-organized data having at least a first node at a first level and a plurality of second nodes at a second level the second nodes being child nodes of the first node, the first and second nodes each having a corresponding data item associated therewith, the data structure comprising: a plurality of rows each having a plurality of fields, each of said rows

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corresponding to a data item associated with a one of the first and second nodes, the fields of each row comprising: a first field which stores the data item associated with the one of the nodes that corresponds to the row; and a second field which stores a position identifier which identifies the level at which the node that corresponds to the row is located in the hierarchically-organized data and which further indicates one of: (a) an identity of an ancestor node of the node that corresponds to the row or (b) the fact that the node that corresponds to the row has no ancestor, wherein the position identifier of the first node comprises a first value in a space of ordered values, and wherein the position identifiers of each of the second nodes comprises said first value and a second value in said space of ordered values, wherein an order is defined among the second nodes, wherein the second values associated with the second nodes are respective of said order with respect to said-space of ordered values, wherein said space of ordered values comprises the set of integers, wherein said first value is a "1" wherein the second values for the second nodes are odd integers in an increasing series of integers.

However Brosda et al (US 5,873,087) fails to anticipate or render obvious the recited feature of wherein said hierarchically-organized data comprises a third node which is a child of said first node and which is located between first and second ones of said second nodes, said third node having a position identifier associated therewith, and wherein the position identifier for the second node comprises said first value, an even number between the second values associated with said first and second ones of said second nodes, and an odd number of independent claim 10.

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4. The present invention is directed to a computer-readable medium having encoded thereon a data structure which represents hierarchically-organized data, said hierarchically-organized data having at least a first node at a first level and a plurality of second nodes at a second level the second nodes being child nodes of the first node, the first and second nodes each having a corresponding data item associated therewith, the data structure comprising: a plurality of rows each having a plurality of fields, each of said rows corresponding to a data item associated with a one of the first and second nodes, the fields of each row comprising: a first field which stores the data item associated with the one of the nodes that corresponds to the row; and a second field which stores a position identifier which identifies the level at which the node that corresponds to the row is located in the hierarchically-organized data and which further indicates one of: (a) an identity of an ancestor node of the node that corresponds to the row or (b) the fact that the node that corresponds to the row has no ancestor, wherein the position identifier of the first node comprises a first value in a space of ordered values, and wherein the position identifiers of each of the second nodes comprises said first value and a second value in said space of ordered values, wherein said ordered values are represented in a form comprising: a length indicator selected from a length-indicator space having non-uniform numbers of bits, each length indicator in said length-indicator space having a prefix property such that no member of said length-indicator space is a prefix of any other member of said length-indicator space; and an ordinal indicator having a length indicated by said length indicator.

The closest prior art of record, Brosda et al (US 5,873,087) teaches a data structure which represents hierarchically-organized data, said hierarchically-organized data having at least a first node at a first level and a plurality of second nodes at a second level the second nodes being child nodes of the first node, the first and second nodes each having a corresponding data item associated therewith, the data structure comprising: a plurality of rows each having a plurality of fields, each of said rows corresponding to a data item associated with a one of the first and second nodes, the fields of each row comprising: a first field which stores the data item associated with the one of the nodes that corresponds to the row: and a second field which stores a position identifier which identifies the level at which the node that corresponds to the row is located in the hierarchically-organized data and which further indicates one of: (a) an identity of an ancestor node of the node that corresponds to the row or (b) the fact that the node that corresponds to the row has no ancestor, wherein the position identifier of the first node comprises a first value in a space of ordered values, and wherein the position identifiers of each of the second nodes comprises said first value and a second value in said space of ordered values, wherein said ordered values are represented in a form.

However Brosda et al (US 5,873,087) fails to anticipate or render obvious the recited feature of a length indicator selected from a length-indicator space having non-uniform numbers of bits, each length indicator in said length-indicator space having a prefix property such that no member of said length-indicator space is a prefix of any

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other member of said length-indicator space; and an ordinal indicator having a length indicated by said length indicator of independent claim 11.

5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

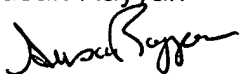
### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan Rayyan whose telephone number is (571) 272-4117. The examiner can normally be reached M-F: 8am - 4:30pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (571) 272-4107. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for Official communications, (703) 746-7238 for After Final communications and (703) 746-7240 for Status inquiries and draft communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Susan Rayyan



December 20, 2004



Primary Examiner